

MICHIGAN DEPARTMENT OF NATURAL RESOURCES  
FISHERIES DIVISION

**STATUS OF THE FISHERIES  
IN MICHIGAN WATERS OF  
LAKE ERIE AND LAKE ST. CLAIR  
2006**



*Lake St. Clair smallmouth bass caught in assessment trap net  
in May 2006 (waiting patiently for jaw tags).*



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Website: [http://www.michigan.gov/dnr/0,1607,7-153-10364\\_10951\\_11304---,00.html](http://www.michigan.gov/dnr/0,1607,7-153-10364_10951_11304---,00.html)

Prepared for the GLFC Lake Erie Committee Meeting  
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## Highlights for 2006

The purpose of this report is to provide an update on the status of the fisheries in the Great Lakes and connecting waters of southeast Michigan. Sources of information used in compiling this report include creel surveys, charter boat reports, an angler diary program, the Master Angler program, and commercial fishery records, as well as fisheries research studies. Some of the highlights described in detail include:

- Lake Erie yellow perch abundance has been steady in recent years, whereas walleye abundance has been more variable. Walleye experienced very good reproduction in 2003, but very poor or below average reproduction in 2000, 2002, 2004, 2005, and 2006.
- Non-charter angler harvest rates for Lake Erie walleye increased to the highest level seen since 1988, but yellow perch harvest rates declined. Angler effort increased to the highest level since 2002.
- Michigan non-charter anglers on Lake Erie caught over 300,000 walleye and harvested over 287,000 of those fish. Anglers reported releasing very low numbers of sub-legal size walleye in 2006. The strong 2003 year class accounted for almost 90% of the Michigan sport harvest.
- Charter boat harvest rates for Lake Erie walleye were about two times higher than those estimated for non-charter anglers, while yellow perch charter boat harvest rates were similar to those estimated for non-charter anglers.
- Entries in the Master Angler Program clearly show that Lake St. Clair is the premier Michigan water for trophy muskellunge and smallmouth bass.
- Rock bass, freshwater drum, and smallmouth bass were the dominant species in the Lake St. Clair trap net survey in 2006. Trophy size channel catfish were again common in the trap nets.
- Long-term tagging studies on Lake Erie walleye stocks clearly illustrate the important contribution of Lake Erie walleye to the Great Lakes sport fishery of Southeast Michigan, from Port Huron to Toledo.
- Tagging studies of lake sturgeon in the connecting waters since 1997 have demonstrated that lake sturgeon routinely move between Lake St. Clair and the St. Clair River. Longer range movements between the St. Clair system and southern Lake Huron are also frequent.

## Fishery Forecast for 2007

Annual variation in reproductive success of walleye and yellow perch can result in substantial year to year changes in the abundance of these species. Harvestable-size yellow perch abundance will be about the same as last year in Lake Erie and Lake St. Clair, with strong contributions from the 2001 and 2003 year classes. Although walleye abundance will decrease in 2007, the average size of walleye available for anglers will be larger. The 2003 year class is expected to again dominate the walleye fishery in the connecting waters and Lake Erie. As a result, walleye anglers will find walleye numbers lower, but average size larger this year. Muskie and bass numbers tend to remain more stable from year to year and both species should continue to provide excellent fishing opportunities in 2007, particularly in Lake St. Clair and the Detroit River. However, weather conditions can affect sport fishing success as much as fish abundance. Therefore it is difficult to predict fishing success. Water levels are forecasted to be slightly higher this year, but remaining below the long term average. Thus shallow waters may continue to restrict angler access to some fishing areas in the connecting waters.

## Sport Fishery Summary

An on-site creel survey conducted by the Michigan Department of Natural Resources (MDNR) produced a total harvest estimate of 521,242 fish (Table 1) for Michigan's 2006 Lake Erie sport fishery (non-charter). In combination, walleye and yellow perch accounted for 93% of the total harvest, reflecting their importance in the sport fishery. Although few bass are harvested by Lake Erie anglers, over 20,000 largemouth and smallmouth bass were reported caught and released by Michigan anglers (Table 2). Estimated angler effort in 2006 increased from 2005 and remained within the range of effort observed since 1991 (Figure 1). The walleye harvest rate in 2006 was the highest recorded since 1988 (Figure 2). The yellow perch harvest rate decreased in 2006 to the lowest level recorded since 1994. Trends in angler effort and harvest rates for walleye and yellow perch since the mid-1980's suggest that the level of angler effort on Lake Erie is affected by many factors in addition to harvest rates. Other factors, including weather, prey fish abundance, fishing success on other Great Lakes waters, and regional economic conditions have likely contributed to the



comparatively low level of fishing effort since 1991.

Biological data were collected from walleye and yellow perch during the 2006 on-site creel survey. The walleye harvest was dominated by the 2003 year class (age 3), which represented 88% of the harvest (Figure 3). This dominance reflects both the strength of the 2003 year class and the weakness of the other year classes in the fishery. Harvested age 3 walleye averaged 422 mm (16.6 in.) in total length. The overall average length of walleye harvested in the sport fishery in 2006 was 430 mm (16.9 in.).

Yellow perch harvest was dominated by age 3 fish (2003 year class), which accounted for 64% of the total harvest (Figure 3). In combination, age 4 and age 5 fish contributed an additional 25% of the total harvest. Average lengths of harvested age 3, 4, and 5 yellow perch were 220 mm (8.7 in.), 226 mm (8.9 in.), and 238 mm (9.4 in.), respectively. The overall average length of yellow perch harvested in the sport fishery in 2006 was 224 mm (8.8 in.). The observed mean length at age for yellow perch taken in the Michigan sport fishery improved slightly for most ages in 2006 (Figure 4).

Since 1989, Michigan charter boat operators have been required to report their charter fishing harvest and effort to the MDNR. In 2006, Michigan charter boat anglers harvested 45,701 fish from Lake Erie (Table 3). Walleye (73%) and yellow perch (26%) were the major species harvested, accounting for 99% of the harvest. The walleye harvest rate in 2006 was the highest recorded since 1998 (Figure 5). In contrast, the yellow perch harvest rate decreased and remained comparatively low for the third straight year. The charter boat walleye harvest rate was more than two times higher than those estimated for non-charter anglers in 2006, while the yellow perch charter harvest rate was less than double the rate for non-charter boat anglers.

For the St. Clair-Detroit River system, charter boat anglers harvested 12,244 fish (Table 4). Yellow perch (55%), walleye (25%), and "other" species (20%), made up the bulk of the harvest. The "other" species category is thought to consist mainly of smallmouth bass. Charter boat harvest rates for walleye declined slightly in 2006, but remained higher than the rates recorded during the 1990's (Figure 6). Yellow perch harvest rates increased to the highest level since 2002. Over

the last 10 years, the walleye charter harvest rate for Lake Erie has consistently been about 3 to 4 times higher than the St. Clair-Detroit River system rate. However, in 2005, the St. Clair charter harvest rate (0.4 walleye per hour) exceeded the Lake Erie charter harvest rate (0.3 walleye per hour). We attribute this anomaly to the effects of the 15" minimum size limit on the waters of the Detroit River and Lake Erie, the 13" minimum size limit on Lake St. Clair and the St. Clair River, and the average length of the dominant 2003 year class in 2005. In 2006, the 2003 year class fish grew beyond the 15" minimum size limit and the Lake Erie charter harvest rate was again better than double the Lake St. Clair charter harvest rate for walleye. Overall, the lower harvest rate typical for the St. Clair system is a reflection of much lower walleye densities in Lake St. Clair throughout this time period. The decline of the Thames River walleye population would likely be a contributing factor to lower walleye abundance in St. Clair-Detroit River system since 1990.

The number of reported charter excursions on Lake Erie increased greatly in 2006, returning to a level similar to those seen from 1990 through 2003 (Figure 7). Factors in this increase are likely the re-opening of the Michigan walleye season for April and May and better walleye fishing for legal-size fish in Michigan waters of Lake Erie in 2006. Charter boat excursions on the St. Clair-Detroit River system increased slightly in 2006. In general, about 3 to 4 times as many charter excursions report harvesting fish from the Michigan waters of Lake Erie than from the Michigan waters of the St. Clair system.

Muskellunge catch rates derived from the Angler Diary Program on Lake St. Clair improved through the late 1980's and early 1990's and have remained fairly steady over the past 10 years (Figure 8). The quality of the Lake St. Clair muskellunge fishery is also reflected in the MDNR's Master Angler Program. The total number of muskellunge from Lake St. Clair entered for Master Angler Awards in 2006 dropped below 50 fish for the first time since 1996 (Figure 9). In fact, a slight downward trend in total entries and number of fish over 30 pounds was evident over the past 2 years. We suspect this trend may be a reflection of increased natural mortality and lower population abundance due to disease impacts from muskie pox and viral hemorrhagic septicemia which have been documented in the muskie population. However,



it is important to recognize that the muskie population continues to provide good fishing opportunities. We expect that the following factors will continue to contribute to a strong muskie population and fishery in Lake St. Clair and the connecting waters: 1) a positive response by the muskie population to increased minimum size limits on both sides of the lake since the mid-1980's; 2) physical and biological changes in the lake such as clearer water and increased aquatic plant growth resulting in improved habitat for muskellunge; and, 3) increased voluntary catch and release fishing for muskies in Lake St. Clair by both sport and charter anglers.

Statistics from the Master Angler program also indicate that Lake St. Clair is one of the premier waterbodies in the state for trophy smallmouth bass. Lake St. Clair accounted for 16% of all smallmouth bass entries in 2006 (catch/keep and catch/release programs combined). Since the early 1990's, both catch/keep and catch/release Master Angler smallmouth bass entries from Lake St. Clair have exhibited an increasing trend (Figure 10). Catch/release entries have outnumbered catch/keep entries for the last seven years. The strong representation of Lake St. Clair smallmouth bass in the statewide Master Angler Program is likely a reflection of an abundance of trophy-size smallmouth bass in the lake, a high degree of angler effort targeting the species, and a strong catch-and-release ethic among smallmouth bass anglers.

## Commercial Fishery Summary

In 2006, three Michigan commercial fishing licenses were active on Lake Erie. For many years, the commercial fishery in Michigan waters of Lake Erie has harvested rough fish species using seines in the shallow embayments along Michigan's Lake Erie shoreline. However, in 2006, a small-mesh trap net license was active for the first time since 1978. The commercial harvest included 12 species of fish for a total of 664,870 pounds (Table 5). In combination, common carp (57%), buffalo (13%) and goldfish (10%) accounted for 80% of the total harvest by weight. The major species in the trap net harvest included gizzard shad (44,997 lbs.) and lake whitefish (10,693 lbs.). November was the peak month for whitefish harvest, coinciding with spawning movements into the western basin. The total value of the 2006 Lake Erie commercial harvest from Michigan waters was estimated at \$254,992.

## Summary of Netting Surveys

During most years since 1978, the Michigan waters of the western basin of Lake Erie have been monitored with spring trap net surveys. In 2006, total catch per net lift (CPUE) for all species combined was the highest since 1989 and well above the long-term mean (Table 6). However, white perch accounted for 74% of the CPUE (Figure 11). Walleye CPUE was the highest since 1991. CPUE values for smallmouth bass, white bass, and quillback were also well above the long-term mean. Conversely, CPUE values for yellow perch, channel catfish, white sucker, freshwater drum, and common carp were all well below the long-term mean CPUE. Smallmouth bass catch rates increased in the mid-90's and since then have held steady. We believe this indicates increased abundance since the mid-90's, probably a result of improved habitat conditions for smallmouth bass in Michigan's waters of Lake Erie. Environmental conditions during the survey period in 2006 included warmer water temperatures, which likely contributed to the high white perch and low yellow perch catch rates.

Age 3 walleye (2003 year class) accounted for 83% of the trap net walleye catch in 2006 (Figure 12). In comparison, the age distribution of the smallmouth bass catch was more evenly distributed across ages 3, 4, 5, 6, 7, and 8. Based on mean length-at-age, no trend is evident for Lake Erie walleye growth rates. A total of 2,107 walleye captured in the trap nets were tagged and released as part of the ongoing interagency tagging project.

Since 1978, the MDNR has fished variable mesh multi-filament gill nets at two locations in western Lake Erie each fall, as part of the interagency yearling walleye assessment program. During 2006, four net lifts caught a total of 280 walleye. The total walleye catch-per-effort for the index sites (70.0) declined by more than 50% from 2005 (Table 7). Age 3 walleye (2003 year class) accounted for nearly 70% of the catch, while yearling walleye (2005 year class) CPUE (12.3 fish per net lift) was well below the long-term average yearling CPUE of 41.1 fish per net lift. Total CPUE for the dominant 2003 year class ranked third behind the record 1982 and 1986 year classes. While the abundant 2003 year class will provide good fishing opportunities for a couple more years, the presence of four very weak year classes in the past 6 years will result in declining



abundance for walleye over the next several years.

In 2006, the MDNR surveyed adult fish populations in Anchor Bay, Lake St. Clair with trap nets. Five trap nets were fished from May 4 to May 24. A total of 3,277 fish representing 23 species were captured during the survey. Rock bass were numerically dominant, accounting for 44% of the total (Figure 13). Other common species in the nets included freshwater drum (11%), smallmouth bass (10%), walleye (7%), and channel catfish (6%).

The trap net survey revealed an abundant population of channel catfish in Anchor Bay with many trophy size individuals. The average weight of channel catfish captured during the 2006 trap net survey was 5.8 pounds. Over 15% of the channel catfish exceeded the minimum size requirement (27 inches total length) for the MDNR Master Angler program. Anglers are discouraged from keeping large channel catfish for food due to consumption advisories as a result of PCB contamination. However, catch-and-release trophy channel catfish angling opportunities are clearly available in Anchor Bay during the spring. The high abundance of large channel catfish suggests that this population is currently experiencing low exploitation.

Over the 5 years of the trap net survey in Anchor bay since 2002, rock bass have dominated the CPUE annually (Table 8). Smallmouth bass CPUE has varied considerably, while walleye CPUE has been rather steady. We suspect smallmouth bass catch rates in the trap nets are related to spawning movements during the survey period and are likely affected by annual variations in the warming of the waters of Anchor Bay. Sturgeon catch rates are low, but a few are captured in the trap nets each year. These fish are likely moving through Anchor Bay towards spawning locations in the St. Clair River.

The forage fish community of Lake St. Clair has been surveyed with bottom trawls each year since 1996 by the MDNR. A total of 16 trawl tows were conducted at the Anchor Bay index trawling site in 2006. The spring samples were dominated by yellow perch, spottail shiner, and trout-perch (Table 9). The species with highest mean densities in the fall samples were spottail shiner, emerald shiner, and mimic shiner (Table 10). Alewife catches have been low since 2003, likely a result of the alewife population crash in Lake

Huron. Yellow perch age-specific catch rates from the trawl survey indicate highly variable recruitment in Lake St. Clair (Table 11). Yellow perch recruitment in 1994, 1998, and 2003 was strong, with total CPUE values for those year classes all over 900 fish per tow. Alternatively, recruitment was poor from 1999 to 2002. Anglers will find the strength of the 2003 year class clearly illustrated by the number of yellow perch in the 7 to 9 inch size range in 2007.

September trawling in Anchor Bay provides early indications of spawning success for yellow perch and smallmouth bass. Catch rates for young-of-year yellow perch from September trawls indicate the 1998 and 2003 year classes were exceptionally strong (Figure 14). Additionally, contributions from the 2004, 2005, and 2006 year classes have been lower, but steady. As a result, the Lake St. Clair yellow perch population will be dominated by age 4 and younger fish in 2007.

Smallmouth bass recruitment patterns appear fairly consistent based on September trawl catch rates of young-of-year (Figure 15). Population studies have suggested that mean length of young-of-year smallmouth bass in the fall can be more important than abundance in determining year class strength. Based on young-of-year mean length, the 1998, 2001, 2005, and 2006 year classes should be strong contributors to the smallmouth bass population in Lake St. Clair.

A total of 228 lake sturgeon were collected during assessment surveys on Lake St. Clair and the St. Clair River in 2006. Sturgeon captured averaged 44.8 inches in total length, with a range from 20 inches to 70 inches. Ages were estimated for 202 sturgeon based on pectoral fin ray sections. Thirty-nine year classes were represented with ages ranging from 3 to 44 years. Combined age samples from 1997-2006 indicate that survival of lake sturgeon spawned in the 1970's and 1980's has been fairly consistent, but lake sturgeon spawned in the 1950's and 60's are much less abundant (Figure 16). This may be a result of improved water quality after the Clean Water Act of 1972. More conservative lake sturgeon sport fishing regulations implemented in 1983 by Michigan could also be a factor in the increased survival.



## Fish Tagging Studies

In 2006, a total of 6,114 walleye were tagged with non-reward tags by Ontario, Ohio, New York, and Michigan at seven Lake Erie and Lake St. Clair sites. A total of 210 non-reward tags placed on fish in 2006 were recovered by fishermen for a single season reporting rate of 3.4%. The 2006 site-specific reporting rate varied from a high of 9.8% at the Anchor Bay site, to a low of 1.2% for the Lake Erie site in Michigan off Monroe just south of the mouth of the Raisin River. Compared with recent years, tag reporting rates were high in 2006. We suspect this may be due in part to greater fishing effort and catch stimulated by good catch rates for the abundant 2003 year class. The distribution of tag recoveries from Michigan's tagging sites on Lake Erie (Figure 17) indicates that walleye tagged at separated locations at spawning time belong to different genetic stocks. Walleye tagged in the Huron River at Flat Rock tend to be captured along the south shore of Lake Erie and on Michigan's side of Lake St. Clair. However, walleye tagged in Lake Erie off Monroe show a stronger tendency to be caught in the St. Clair River and along the north shore of Lake Erie. In general, the interagency tagging study continues to provide evidence of substantial movement of walleye from spawning locations in Lake Erie through the St. Clair connecting waters.

Legal size walleye (241 fish) and smallmouth bass (270 fish) captured in survey trap nets in Anchor Bay during May, 2006 were tagged and released. A total of 21 walleye and 23 smallmouth bass tagged in 2006 were recovered by anglers and reported to MDNR. A map showing the geographical distribution of walleye tag recoveries in 2006 for walleye tagged in Anchor Bay is presented in Figure 18. On average, recaptured walleyes tagged prior to 2006 had traveled 35.1 km from the Anchor Bay tag site, while those tagged in 2006 had traveled 24.5 km. The tagged walleye recovered by anglers averaged slightly smaller in total length at tagging (434 mm) compared to the tagged population (451 mm). This difference suggests that the largest individuals were either subject to slightly higher natural mortality or were less vulnerable to capture. The seasonal pattern of walleye tag recoveries differed between years. Recoveries for walleye tagged in 2006 were reported during May through October and came from Lake St. Clair, the St. Clair River, and one from the upper Detroit River. In contrast, recoveries in 2006 of walleye tagged in Anchor Bay in 2002-2005 were reported

during April through July and were caught from Lake Erie, the Detroit River, Lake St. Clair, and the St. Clair River. The two fish from Lake Erie and the lower Detroit River were caught prior to their tagging anniversary apparently preventing them from migrating to their traditional summer feeding grounds in Anchor Bay of Lake St. Clair. These results suggest that the individual walleye tagged in Anchor Bay originate from Lake Erie spawning stocks and that they repeat individual movement patterns from year to year. However, it is obvious from tag recovery patterns that many individuals from the Lake Erie spawning stocks migrate within that lake, never venturing into the Detroit River and Lake St. Clair.

For the first time since 2002, there was virtually no difference in the tag reporting rate between walleye (8.7%) and smallmouth bass (8.5%). This change coincided with a new early catch and release bass season for Lake St. Clair in 2006 and could be related to that change. The new season may have resulted in increased bass fishing activity, but only one tagged bass was reported caught during the new early season. Alternatively, fishing effort targeting other species, such as walleye or yellow perch, may have been much higher in 2006, resulting in higher numbers of tagged bass caught and reported by non-bass anglers. Unfortunately, there was no creel survey to monitor effort or harvest for Michigan waters of the St. Clair system in 2006.

A total of 1,862 lake sturgeon have been tagged and released on the St. Clair River and Lake St. Clair since 1996. To date, 139 tagged lake sturgeon have been recaptured with survey gear or reported by fishermen. Seventy-one have been recovered with survey setlines in the North Channel. One was recovered in a survey trap net in Anchor Bay, while 11 have been recaptured in assessment trawls on Lake St. Clair. Sport anglers have reported 31 recoveries, nearly all from the North Channel. Twenty recoveries have been reported from the Ontario commercial trap net fishery in southern Lake Huron, approximately 70 km from the tag site. All other recaptures have occurred within 10 km of the tag sites. Trawling has accounted for the capture of 47% of the sturgeon tagged and released during this study, but only 21 recoveries (15%) have been fish originally caught in a trawl on Lake St. Clair. This may be an indication that fish residing year-around in the St. Clair River, or moving into Lake Huron, experience a higher level of exploitation than fish residing all year in Lake St. Clair.



## Viral Hemorrhagic Septicemia

A new viral fish disease was identified in Lake St. Clair muskie samples collected in 2003. Since then, viral hemorrhagic septicemia (VHS) has been documented in yellow perch, freshwater drum, gizzard shad, spottail shiner, and emerald shiners from Lake St. Clair. The VHS virus is believed to have been a primary factor in die-offs of muskie, gizzard shad, and yellow perch in Lake St. Clair and the St. Clair River during spring 2006. It has also been linked to fish die-offs in Lake Erie (freshwater drum and yellow perch), Lake Ontario (freshwater drum and round goby), and Lake Huron (lake whitefish and walleye). The ultimate impact of this fish disease on the sport fish populations of the St. Clair River system is unpredictable. The Michigan DNR will be closely monitoring the fish populations of these waters during 2007 to gain a better understanding of the species affected and the impact of the disease on those populations.

Anglers are encouraged to report sick fish or fish kills to their local DNR office or use the DNR Web site at [www.michigan.gov/dnr](http://www.michigan.gov/dnr). Anglers should contact the DNR if they observe fish that exhibit any of the following signs: hemorrhaging in the skin, including large red patches particularly on the sides and anterior portion of the head; multiple hemorrhages on the liver, spleen, or intestines; or hemorrhages on the swim bladder that give the otherwise transparent organ a mottled appearance. This information will help DNR fisheries staff to track VHS and take appropriate management actions to help slow the spread of this virus.

Anglers and boaters can also help prevent the spread of VHS and other viruses or bacteria that cause disease in fish by not transferring fish between water bodies, and by thoroughly cleaning boats, trailers, nets, and other equipment when traveling between different lakes and streams. The use of a light disinfectant such as a solution of one part chlorine bleach to 10 parts water (i.e., one gallon of bleach to 10 gallons of water) to clean vessels and live wells is very effective against VHS and other viruses and bacteria that cause disease in fish. Soaking exposed items such as live wells, nets, anchors, and bait buckets in a light disinfectant for 30 minutes is also an effective method to prevent the spread of a wide range of aquatic nuisance species.

## Water Levels

After nearly 30 years of above average water levels, anglers and boaters have experienced below average water levels in the connecting waters and Lake Erie during the last eight years. Water levels in the connecting waters are expected to be 2 to 4 inches higher in 2006 than last year, but will remain near the long term average. The effect of lower water levels on fish populations is uncertain. Short-term impacts may be negative. For example, northern pike spawning may be negatively impacted because coastal wetlands are dewatered. However, low water levels can result in recovery of lost coastal wetland areas. In Lake St. Clair, recovery of beds of emergent bulrush and wild rice has been apparent over the past 5 years. Unfortunately, invasive common reed (*Phragmites australis*) has also expanded its distribution in the St. Clair Flats area during this period of low water. When water levels return to average or higher, increased coastal wetland habitat will positively impact many of the fish species in the connecting waters.

## Sport Fishing Regulations

Walleye in Lake Erie are managed cooperatively with other jurisdictions under a harvest quota system. Reduced spawning success for walleye in Lake Erie resulted in lower adult walleye abundance in the late 1990's. In response, to the lower abundances and reduced harvest quotas, the Michigan sport fishing regulations for walleye in Lake Erie were more restrictive from 2004-2005. However, walleye abundance rebounded due to strong spawning success in 2003. As a result, in 2006, walleye fishing was again opened all year for Michigan waters of Lake Erie. The daily bag limit remains at 5 fish, while the walleye minimum size limit is 15 inches.

In 2006, Michigan bass fishing seasons were changed to include a statewide early catch-and-immediate-release (CIR) season. This change remains in effect thru at least 2010. The CIR season opens statewide the last Saturday in April and extends to the opening day for the harvest season. The open harvest season for smallmouth and largemouth bass fishing in the Michigan portion of the connecting waters is the third Saturday in June to December 31. The harvest season for the Michigan waters of Lake Erie opens on the Saturday before Memorial Day.





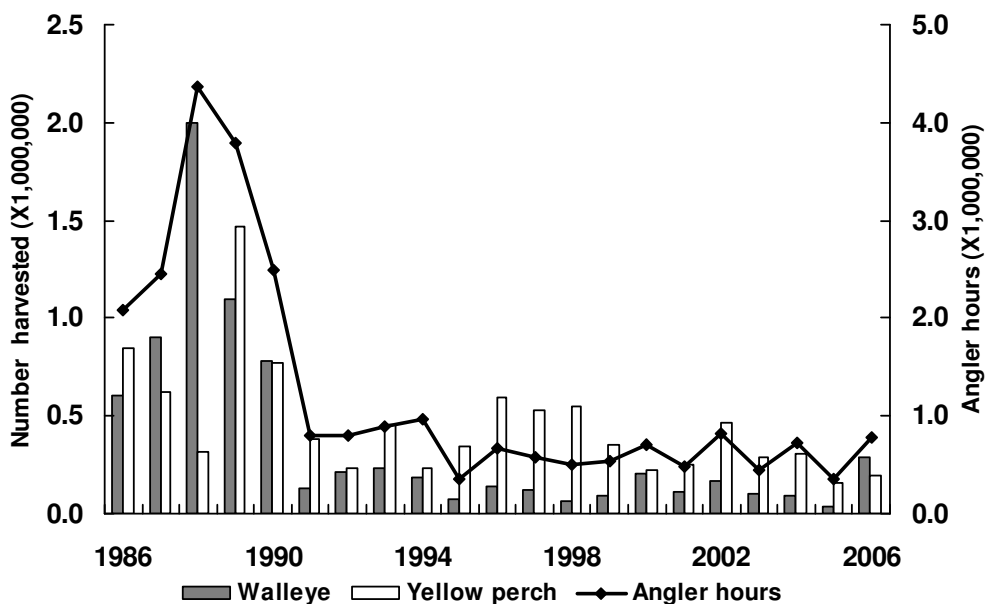


Figure 1.—Estimated harvest and effort for Michigan's Lake Erie sport fishery, 1986-2006.

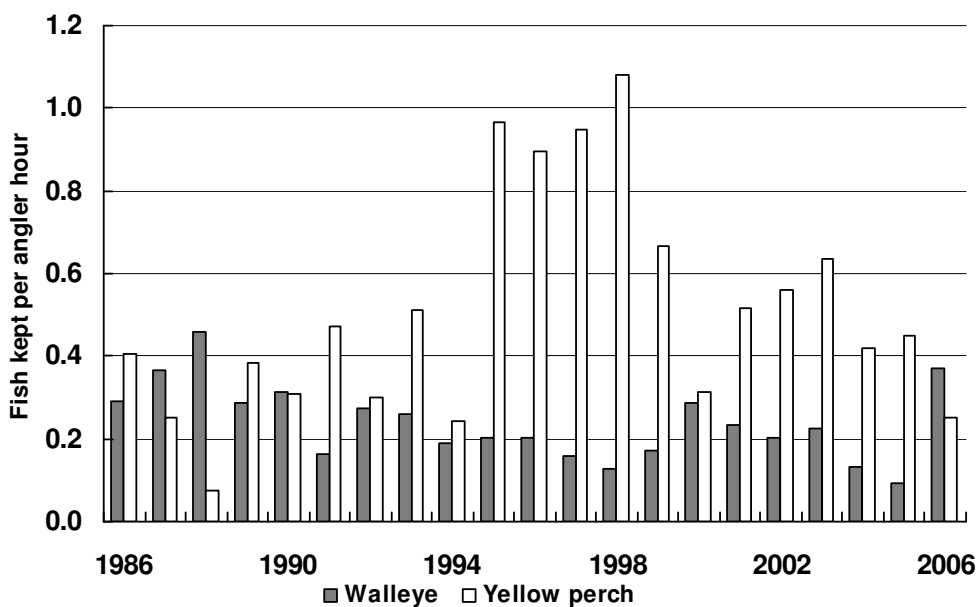


Figure 2.—Walleye and yellow perch harvest rates for Michigan's Lake Erie sport fishery, 1986-2006.





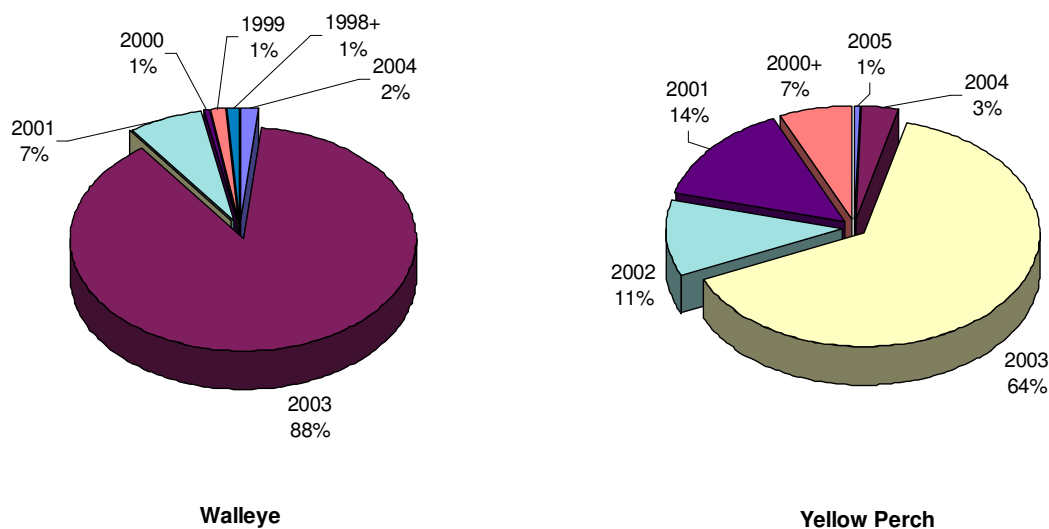


Figure 3. —Year-class contribution to Michigan sport harvest for walleye and yellow perch from Lake Erie in 2006.

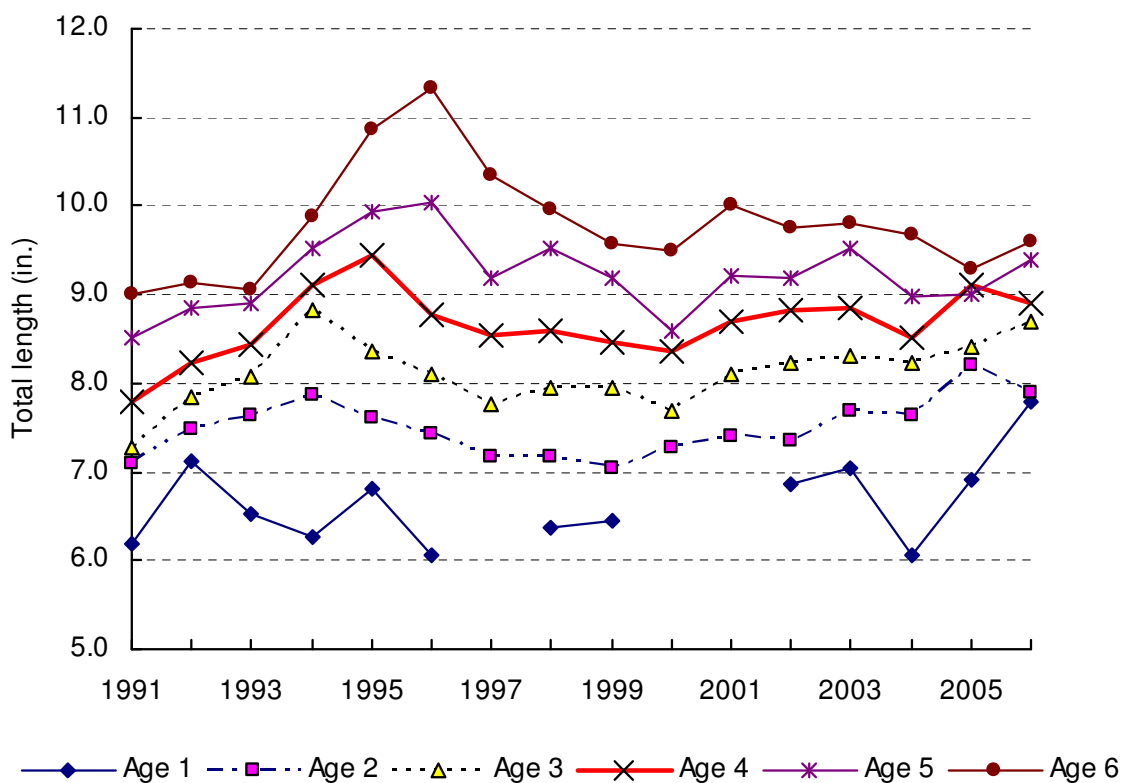


Figure 4. —Mean length at age for sport-harvested yellow perch from Michigan's waters of Lake Erie, 1991-2006.



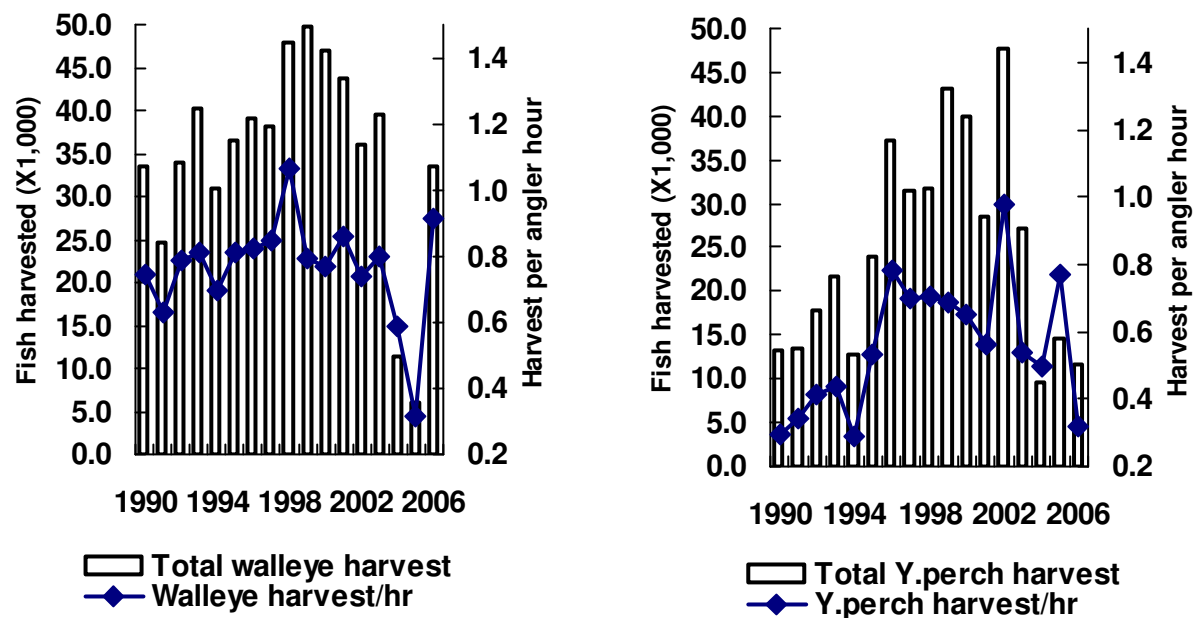


Figure 5. —Michigan charter boat harvest and harvest rates for Lake Erie, 1990-2006.

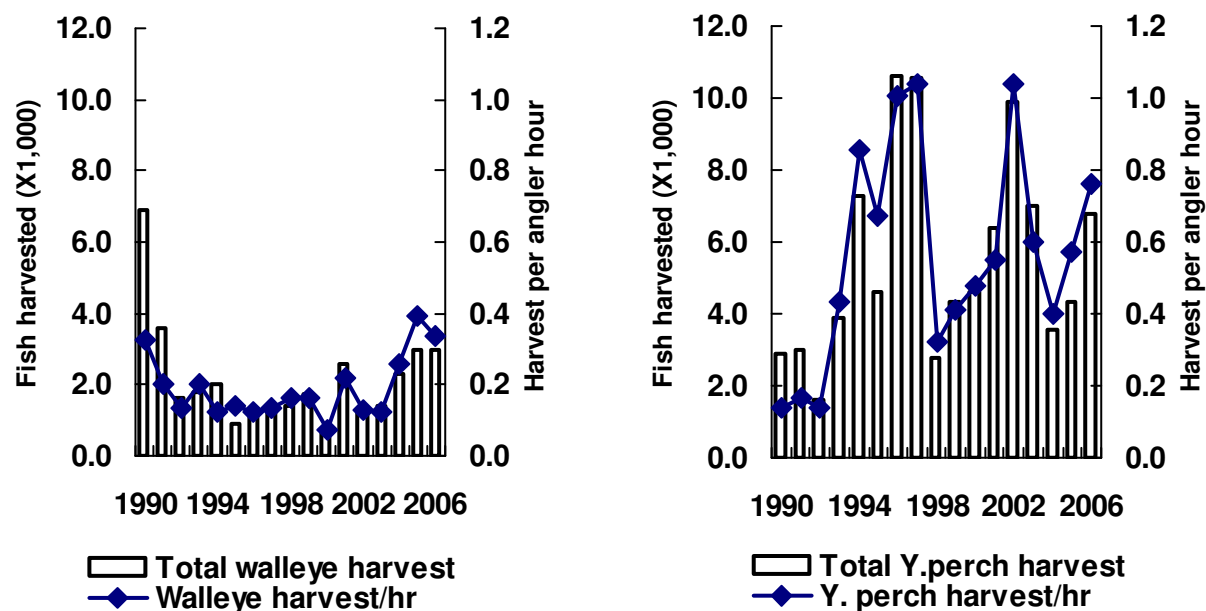


Figure 6. —Michigan charter boat harvest and harvest rates for the St. Clair-Detroit River system, 1990-2006.



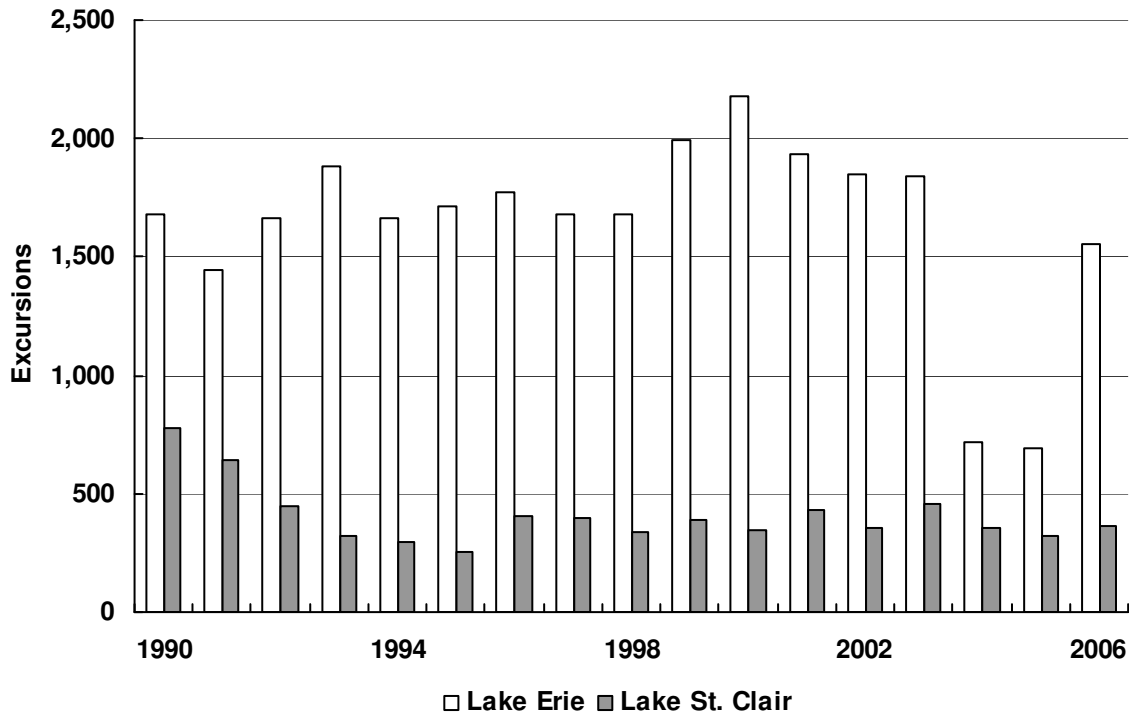


Figure 7. —Reported charter boat excursions on Lake Erie and the St. Clair-Detroit River system, 1990-2006.

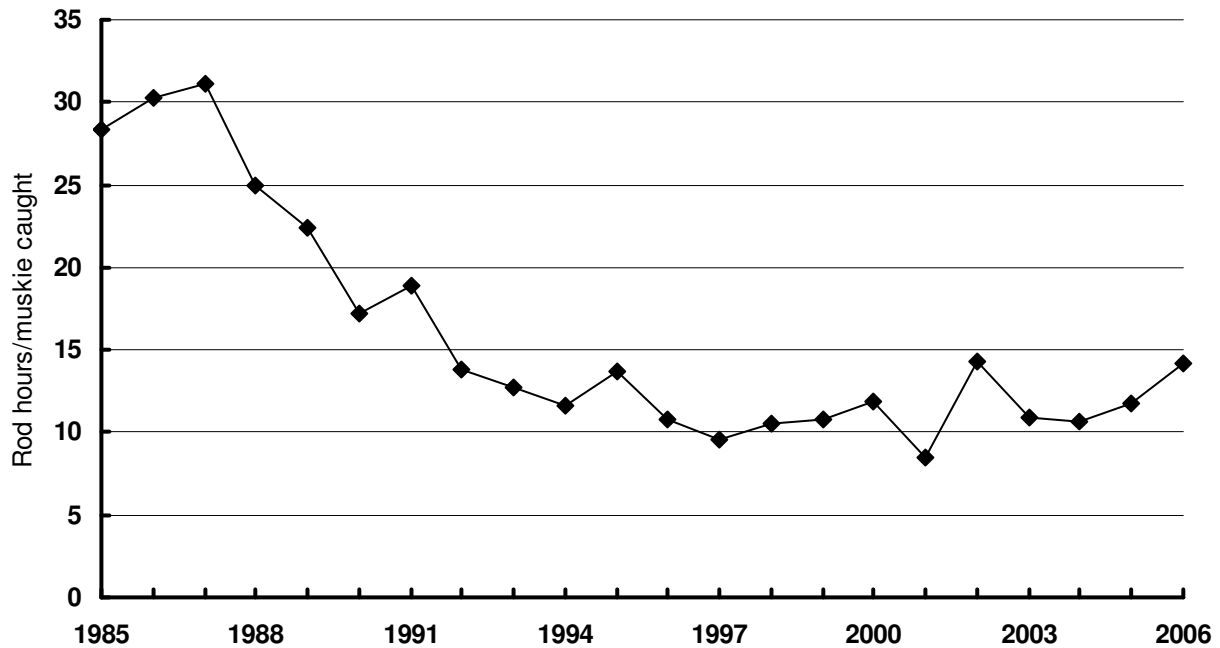


Figure 8. —Lake St. Clair muskellunge catch rate from Angler Diary Program, 1985-2006.



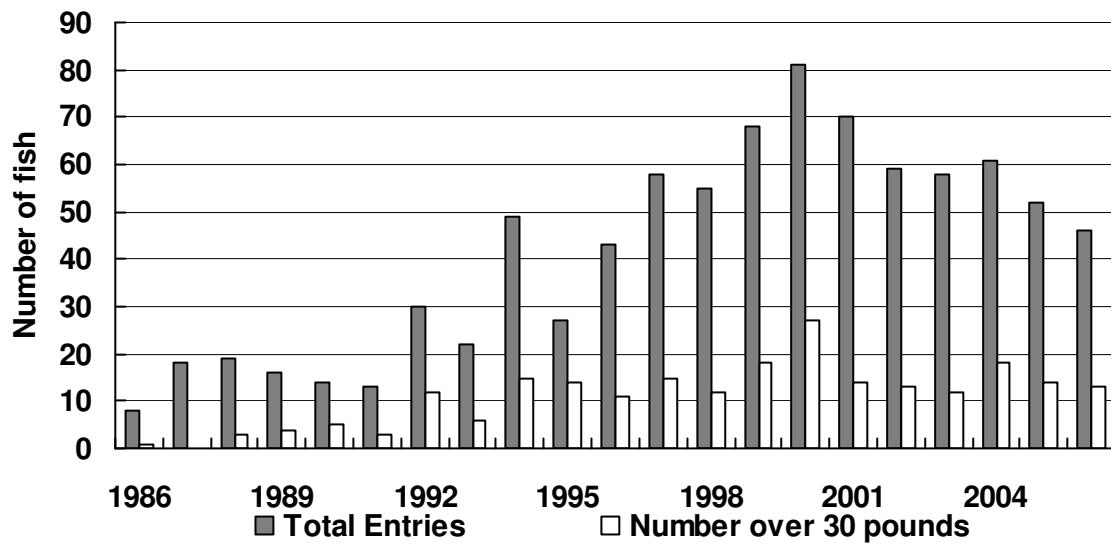


Figure 9. —Lake St. Clair muskellunge entered in the Michigan DNR Master Angler Program, 1986-2006. Values for 1992-2006 represent combined regular and catch-and-release Master Angler categories.

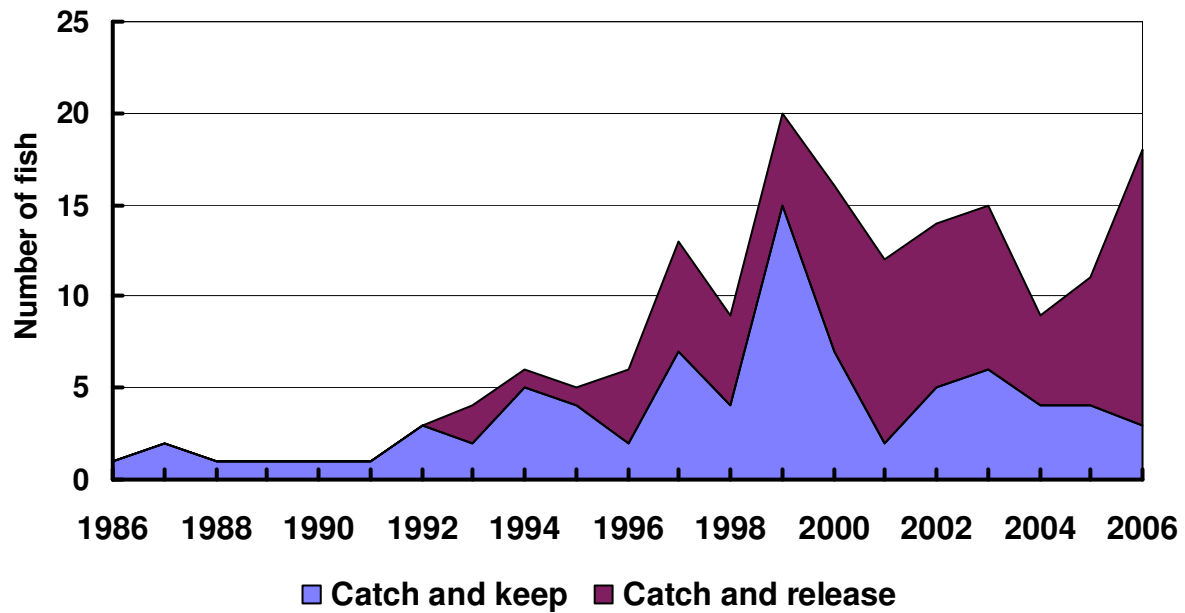


Figure 10. —Lake St. Clair smallmouth bass entered in the Michigan DNR Master Angler Program, 1986-2006.



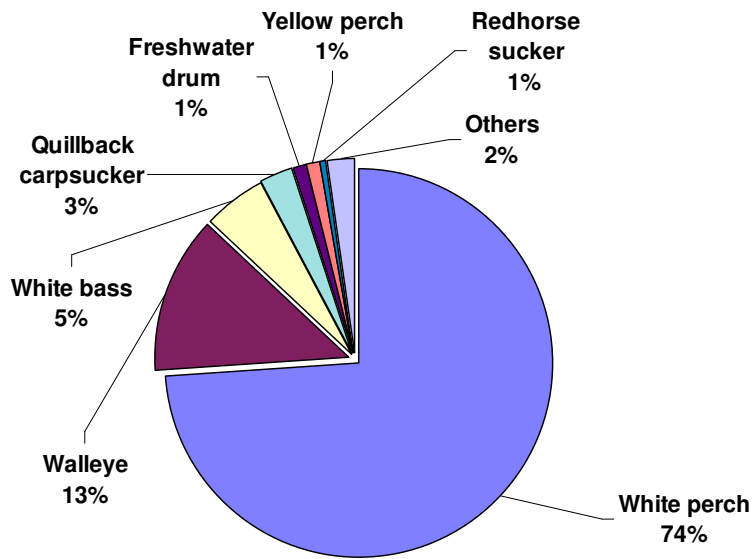


Figure 11 —Catch composition for trap nets fished in Lake Erie during April 2006.

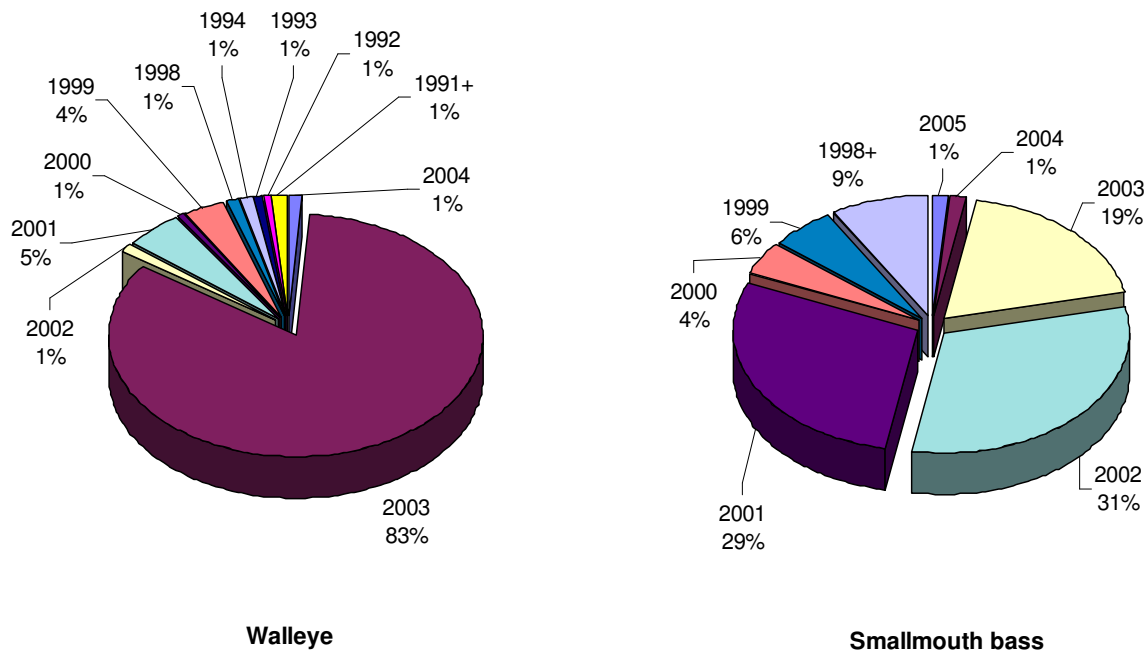


Figure 12 —Contribution by year class to catch in survey trap nets in Lake Erie, April 2006.

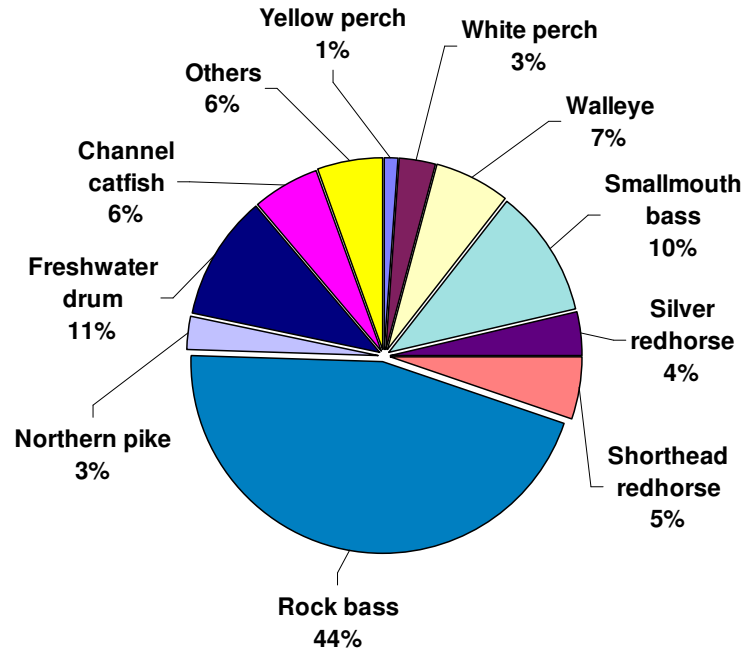


Figure 13. —Catch composition for trap nets fished in Lake St. Clair during May 2006.

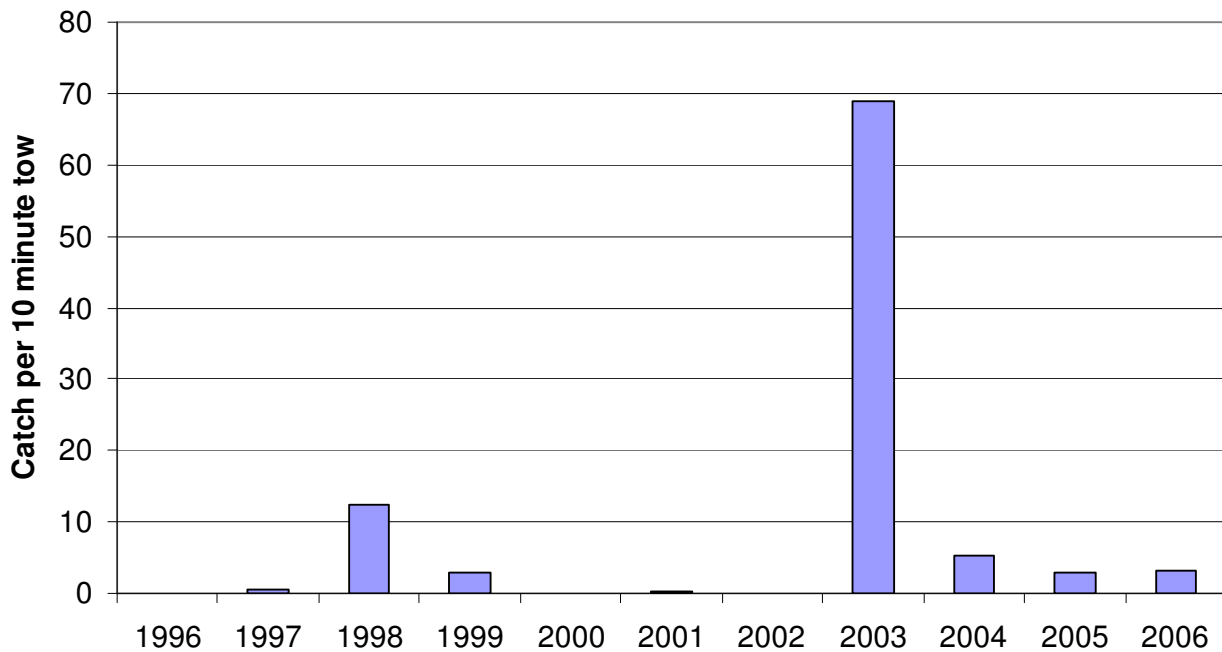


Figure 14. —Year-class strength for yellow perch in Lake St. Clair as indicated by September trawl catch rates, 1996 to 2006.



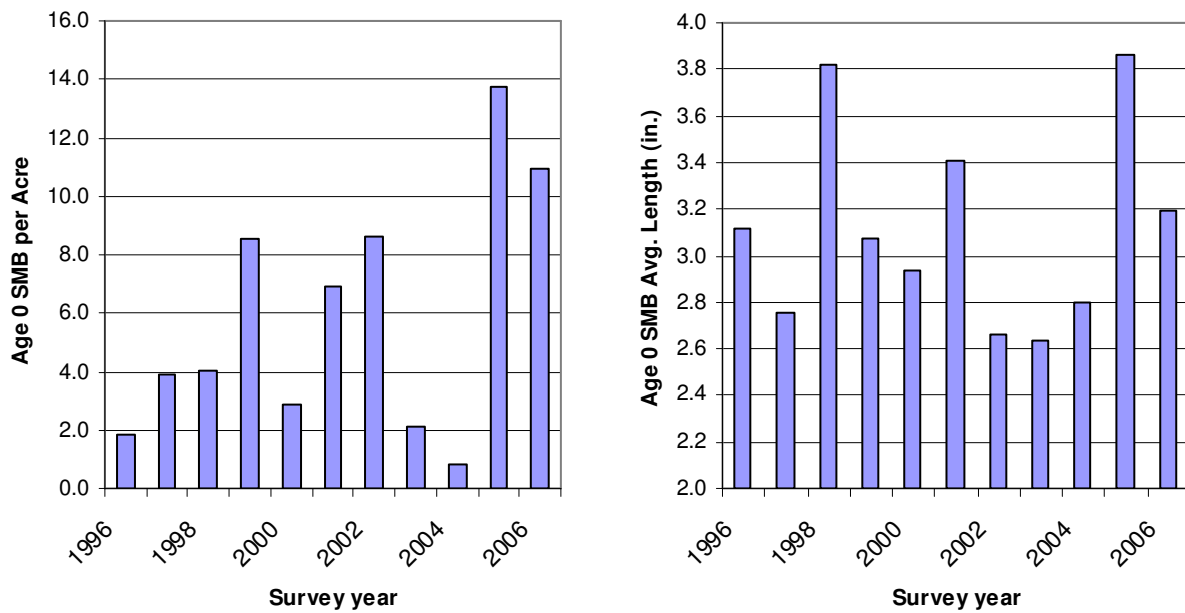


Figure 15. —Year-class strength for Lake St. Clair smallmouth bass as indicated by September trawl catch rates and mean length for young-of-year, 1996 to 2006.

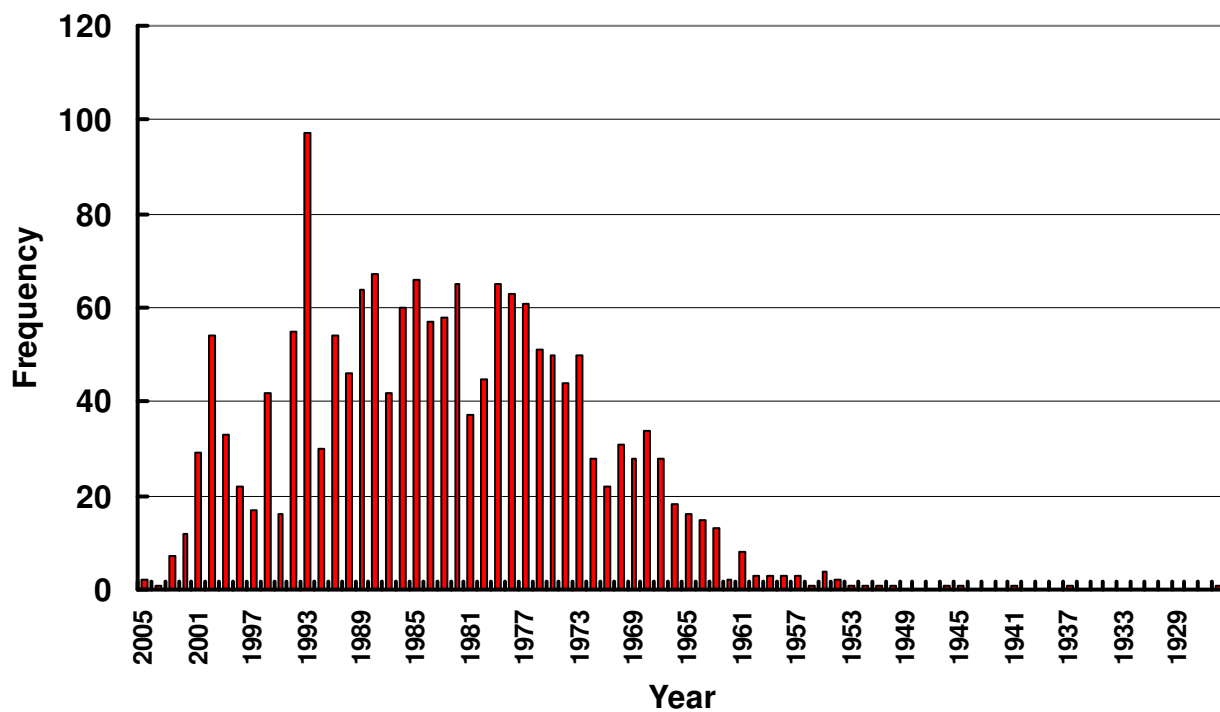


Figure 16. —Year of hatching for lake sturgeon sampled from Lake St. Clair and St. Clair River from 1997 to 2006 by Lake St. Clair Fisheries Research Station (n=1,722).





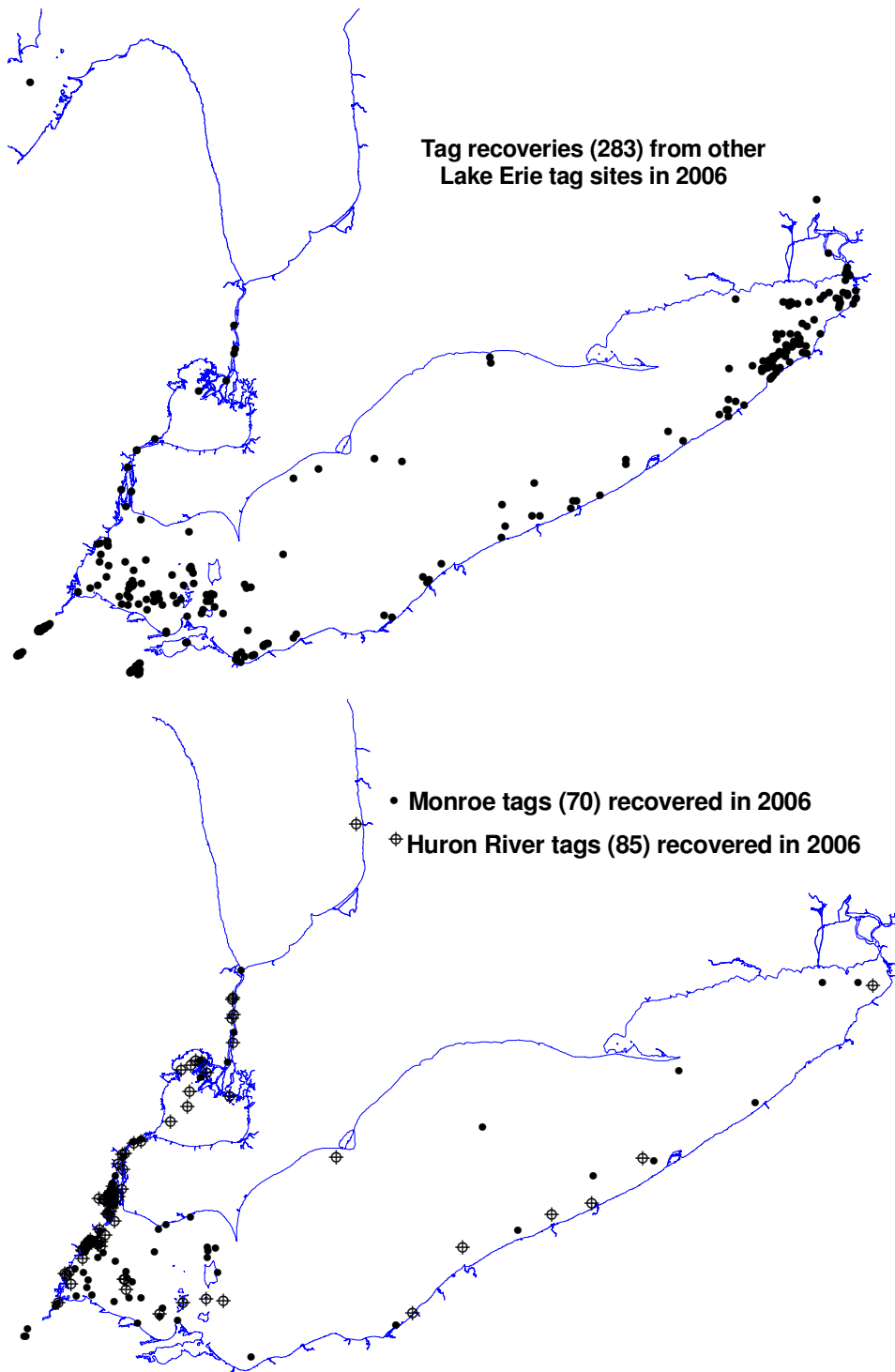
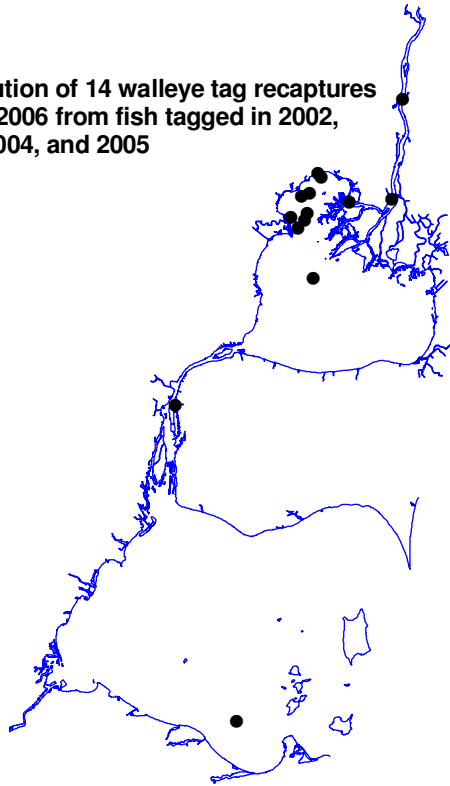


Figure 17. —Geographical distribution of walleye tag recoveries in 2006 from fish tagged during all years in Lake Erie at Monroe and the Huron River at Flat Rock, MI (bottom map) and other Lake Erie tag sites (top map).

**Distribution of 14 walleye tag recaptures  
during 2006 from fish tagged in 2002,  
2003, 2004, and 2005**



**Distribution of 30 walleye tag recaptures  
during 2006 from 214 fish tagged in 2006**

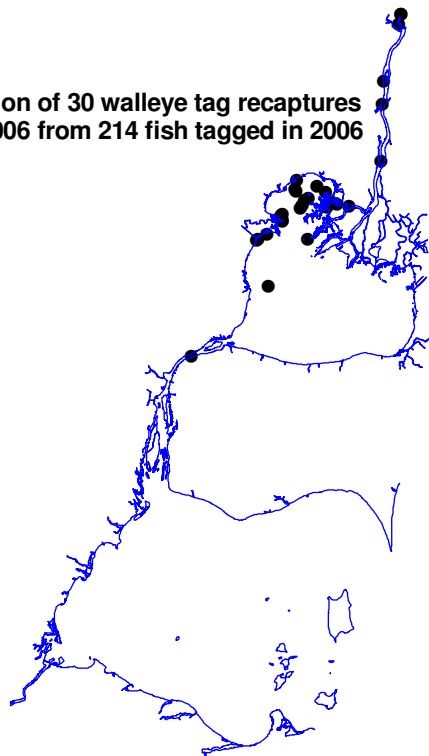


Figure 18. —Geographical distribution of walleye tag recoveries in 2006 from fish tagged during each year at the Anchor Bay site in Lake St. Clair.



Table 1. —Estimated harvest, harvest rate, and effort for Michigan's 2006 Lake Erie non-charter boat fishery. Two standard errors in parentheses.

Species	Harvest	Month							
	per hour	Apr	May	Jun	Jul	Aug	Sep	Oct	Season
Walleye	0.3698 (0.0926)	3,085 (3,121)	41,415 (23,390)	168,410 (52,815)	69,287 (30,038)	4,418 (5,319)	471 (1,093)	881 (3,568)	287,968 (65,504)
Yellow perch	0.2508 (0.1529)	67 (338)	5,257 (7,217)	37,955 (70,135)	21,452 (51,846)	42,949 (44,986)	51,981 (49,624)	35,633 (40,078)	195,249 (117,268)
Channel catfish	0.0164 (0.0517)	477 (1,309)	804 (9,438)	4,064 (21,010)	4,559 (31,634)	1,431 (6,419)	1,188 (6,149)	257 (2,596)	12,779 (40,233)
White bass	0.0162 (0.0369)	691 (3,577)	6,451 (26,990)	3,782 (7,888)	688 (2,245)	494 (2,834)	445 (2,393)	84 (344)	12,635 (28,678)
White perch	0.0135 (0.0171)	33 (337)	2,337 (6,144)	3,900 (8,325)	888 (2,984)	380 (2,093)	2,087 (6,742)	908 (3,052)	10,534 (13,237)
Freshwater drum	0.0011 (0.0027)	57 (615)	146 (449)	483 (1,882)	0 (0)	29 (188)	156 (615)	0 (0)	872 (2,130)
Largemouth bass	0.0010 (0.0060)	0 (0)	658 (4,410)	0 (0)	0 (0)	0 (0)	130 (1,612)	0 (0)	788 (4,695)
Bluegill	0.0003 (0.0021)	5 (34)	0 (0)	0 (0)	0 (0)	0 (0)	196 (1,658)	0 (0)	201 (1,658)
Rock bass	0.0001 (0.0006)	0 (0)	0 (0)	83 (490)	0 (0)	0 (0)	0 (0)	0 (0)	83 (490)
Smallmouth bass	0.0001 (0.0004)	0 (0)	0 (0)	37 (245)	0 (0)	0 (0)	31 (186)	0 (0)	69 (308)
Black crappie	0.0000 (0.0002)	20 (135)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	20 (135)
Angler hours		19,551 (7,566)	127,724 (43,254)	283,559 (55,616)	168,806 (28,615)	77,960 (15,259)	56,383 (16,679)	44,647 (16,981)	778,631 (81,483)
Angler trips		3,915 (1,443)	24,901 (8,480)	65,995 (13,133)	38,163 (6,823)	17,180 (3,689)	13,194 (3,970)	9,633 (3,749)	172,981 (18,342)
Angler days		3,915 (1,443)	24,685 (8,383)	65,404 (13,017)	38,163 (6,823)	17,180 (3,689)	13,194 (3,970)	9,633 (3,749)	172,173 (18,216)

Table 2. —Estimated catch and harvest with catch and harvest rates (total and targeted) for selected species in Michigan's 2006 Lake Erie non-charter boat fishery. Catch includes both fish harvested and caught and released. Two standard errors in parentheses. NE=not estimated.

Species	Catch	Catch per hour	Targeted catch per hour	Harvest	Harvest per hour	Targeted harvest per hour
Walleye	300,056 (69,256)	0.3854 (0.0977)	0.5335 (0.1462)	287,968 (65,504)	0.3698 (0.0926)	0.5122 (0.1312)
White bass	40,421 (47,311)	0.0519 (0.0610)	NE	12,635 (28,678)	0.0162 (0.0369)	NE
Largemouth bass	20,467 (75,860)	0.0263 (0.0975)	NE	788 (4,695)	0.0010 (0.0060)	NE
Smallmouth bass	2,426 (4,442)	0.0031 (0.0057)	NE	69 (308)	0.0001 (0.0004)	NE
Northern pike	41 (253)	0.0001 (0.0003)	NE	0 (0)	0.0000 (0.0000)	NE



Table 3. —Total harvest per hour, harvest per excursion, number harvested, and fishing effort (angler hours, trips, and charter excursions) for charter boats on Lake Erie, 2006.

Species	Total harvest per hour	Harvest per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Yellow perch	0.318	7.52	0	47	1,194	1,323	3,282	5,075	758	11,679
Walleye	0.912	21.561	92	3,444	19,995	8,800	1,102	52	0	33,485
Other	0.015	0.346	0	86	251	187	13	0	0	537
Angler hours			171	3,849	19,420	9,470	2,238	1,336	236	36,720
Angler trips			34	791	4,246	1,983	434	268	46	7,802
Charter excursions			7	161	837	399	86	53	10	1,553

Table 4. —Total harvest per hour, harvest per excursion, number harvested, and fishing effort (angler hours, trips, and charter excursions) for St. Clair-Detroit system charter boats, 2006.

Species	Total harvest per hour	Harvest per excursion	Month									Season
			Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Yellow perch	0.760	18.585	0	0	0	800	840	622	1,456	2,557	527	6,802
Walleye	0.336	8.213	32	1,073	656	461	363	287	77	57	0	3,006
Other	0.272	6.656	0	18	32	457	852	843	220	14	0	2,436
Angler hours			36	1,567	782	1,801	1,487	1,818	796	587	72	8,946
Angler trips			6	239	152	293	272	295	129	107	12	1,505
Charter excursions			2	68	44	67	66	70	26	21	2	366

Table 5. —Commercial harvest from Michigan waters of Lake Erie in 2006.

	Carp	Buffalo	Goldfish	Channel catfish	Gizzard shad	Lake whitefish	Other <sup>1</sup>	Total
Harvest (lbs.)	378,123	85,269	67,171	42,281	52,382	10,693	28,951	664,870
% of total	57	13	10	6	8	2	4	100
Market value	\$90,105	\$56,857	\$47,875	\$26,801	\$13,199	\$8,049	\$12,105	\$254,992

<sup>1</sup>Other category includes bullheads, suckers, quillback, white bass, white perch, and freshwater drum



Table 6. —Mean catch per trap net lift for species commonly taken during spring trap net surveys in Michigan waters of Lake Erie.

Species	Survey year													
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Walleye	28.1	49.0	18.1	20.6	38.8	26.1	36.6	75.5	61.7	33.9	83.1	35.9	23.8	95.9
Smallmouth bass	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.3	0.1	0.2
Yellow perch	377.0	320.0	669.0	512.0	146.0	257.0	129.0	156.0	40.3	174.0	22.9	251.5	41.7	94.6
Rock bass	1.2	0.8	1.9	0.9	1.5	1.3	1.0	1.5	0.7	1.5	0.9	0.8	0.3	0.8
White bass	1.5	1.5	3.7	1.4	10.5	4.9	2.5	2.8	7.6	0.4	5.3	4.7	0.9	1.6
White perch	0.0	0.1	0.3	0.5	24.6	35.0	10.9	38.9	30.3	43.5	63.1	233.0	40.5	56.8
Pumpkinseed	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0
Bluegill	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2
Black crappie	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.1	0.2	0.2	0.4	0.2	0.0	0.0
Channel catfish	3.5	9.7	5.4	5.8	4.9	10.6	4.6	5.5	5.4	2.7	3.5	4.1	9.0	6.0
Brown bullhead	0.2	1.1	1.6	1.9	1.7	4.2	2.5	1.5	4.1	0.9	9.2	3.9	13.1	4.3
White sucker	7.8	8.3	7.9	12.2	8.7	6.7	10.2	33.0	10.2	7.0	6.7	2.8	4.3	13.5
Redhorse sp.	2.4	1.2	0.6	1.0	0.8	1.5	1.7	1.4	1.3	1.7	1.8	0.6	0.4	0.6
Freshwater drum	37.4	66.8	14.0	42.9	13.4	23.5	25.1	30.6	25.3	9.1	15.6	6.4	5.1	25.6
Common carp	5.1	26.1	4.7	8.2	6.9	14.9	3.5	2.0	1.9	0.6	6.0	0.6	2.3	2.3
Goldfish	4.8	2.4	0.3	0.4	0.4	2.5	0.6	0.2	0.1	0.0	0.2	0.1	0.1	0.1
Gizzard shad	4.4	4.7	2.3	3.9	17.8	28.4	18.1	17.4	2.7	2.3	15.9	0.3	2.3	0.0
Longnose gar	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bowfin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Quillback	4.0	18.6	1.8	2.0	2.4	5.6	2.0	1.9	1.7	1.8	1.5	0.7	1.9	2.9
Stonecat	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Total	477.9	510.3	731.8	613.9	278.8	422.4	248.7	368.5	193.6	279.7	236.4	546.2	145.8	305.5
% yellow perch	78.9	62.7	91.4	83.4	52.4	60.8	51.9	42.3	20.8	62.2	9.7	46.0	28.6	31.0
% white perch	0.0	0.0	0.0	0.1	8.8	8.3	4.4	10.6	15.7	15.6	26.7	42.7	27.8	18.6
Net lifts	50	46	48	36	37	53	57	51	49	55	51	55	82	29



Table 6. —Continued.

Species	Survey													78-89	90-99	78-06
	1992	1993	1994	1995 <sup>1</sup>	1996	1997	1998	1999	2000	2002	2004	2005	2006	Mean	Mean	Mean
Walleye	37.7	39.2	53.0	26.2	52.0	30.2	34.8	38.0	41.4	35.7	38.7	11.6	73.5	42.3	43.1	42.2
Smallmouth bass	0.1	0.2	0.8	2.2	2.1	1.2	1.9	1.9	2.2	1.2	3.3	2.2	2.4	0.1	1.1	0.9
Yellow perch	35.0	50.2	23.2	10.3	36.6	30.7	33.3	61.0	50.1	74.5	11.2	2.0	6.0	254.6	41.5	133.8
Rock bass	0.5	1.2	1.0	4.1	1.1	0.9	1.0	2.8	0.7	1.1	0.9	0.6	1.3	1.2	1.4	1.2
White bass	0.5	0.1	1.1	2.1	0.6	2.6	1.3	4.6	4.0	3.0	7.7	6.8	30.3	3.9	1.5	4.2
White perch	5.1	0.0	14.7	72.8	5.9	10.2	8.7	79.4	54.7	36.3	62.2	84.1	403.0	40.0	29.4	52.4
Pumpkinseed	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0
Bluegill	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Black crappie	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Channel catfish	4.6	4.6	5.4	3.7	8.8	4.4	11.4	16.0	5.2	8.0	7.6	1.4	2.2	5.5	7.4	6.1
Brown bullhead	4.0	1.6	1.1	0.2	1.1	0.4	0.0	1.0	2.9	0.8	0.7	0.2	0.7	2.7	2.7	2.4
White sucker	14.6	9.0	5.8	7.4	14.0	4.7	15.0	6.0	5.8	6.3	4.3	1.6	2.6	10.1	9.4	8.7
Redhorse sp.	3.1	3.6	1.8	1.0	5.5	1.9	3.3	2.2	3.8	4.8	4.3	1.8	3.9	1.3	2.3	2.1
Freshwater drum	8.9	20.7	8.8	13.0	15.4	6.8	28.3	50.4	11.3	42.7	21.5	4.2	6.2	25.8	18.3	21.4
Common carp	1.3	1.4	3.7	2.9	8.2	0.6	3.1	8.0	12.2	1.6	7.6	1.6	1.8	6.7	3.4	5.1
Goldfish	0.1	0.0	4.4	0.1	0.5	0.1	0.0	0.1	0.0	0.0	0.1	0.2	0.1	1.0	0.5	0.7
Gizzard shad	0.6	0.3	0.3	1.7	0.3	0.0	0.0	0.2	2.4	0.1	0.0	0.2	1.0	9.9	0.6	4.7
Longnose gar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bowfin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Quillback	4.4	3.2	4.6	6.7	8.9	2.2	7.9	8.5	3.7	20.8	14.2	3.3	14.5	3.7	5.1	5.6
Stoney cat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	120.5	135.2	129.6	155.2	161.2	96.9	150.0	280.3	200.4	237.0	184.4	121.7	549.5	409.0	167.8	291.8
% yellow perch	29.0	37.1	17.9	6.2	22.7	31.7	22.2	21.8	25.0	31.4	6.1	1.7	1.1	55.2	24.8	36.1
% white perch	4.2	0.0	11.3	46.9	3.6	10.5	5.8	28.3	27.3	15.3	33.7	69.1	73.3	11.1	15.7	18.8
Net lifts	55	40	45	39	45	57	44	45	51	81	38	42	29	49	48	48

<sup>1</sup>Sampling period delayed two weeks.

Table 7. —Walleye CPUE (number per net lift) in multi-filament gill nets during fall surveys on Michigan waters of Lake Erie.

Year	Total	Survey year																		
Class	CPUE	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
1977	171.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1978	61.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1979	72.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1980	92.7	0.0	0.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1981	72.3	0.3	0.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1982	306.2	7.5	3.5	0.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1983	34.6	1.8	1.8	2.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1984	147.7	8.0	8.3	2.0	0.5	0.3	0.5	—	—	—	—	—	—	—	—	—	—	—	—	
1985	177.2	14.3	8.5	1.5	1.3	0.8	1.0	—	—	—	—	—	—	—	—	—	—	—	—	
1986	297.5	90.3	43.5	19.5	11.0	3.8	2.0	0.3	—	—	—	—	—	—	—	—	—	—	—	
1987	127.8	53.8	26.8	20.0	13.8	2.5	3.8	1.0	0.5	0.8	—	0.3	—	—	—	—	—	—	—	
1988	125.0	61.5	35.8	9.3	7.3	4.5	4.5	0.5	0.8	0.8	0.0	—	—	—	—	—	—	—	—	
1989	52.6	—	16.0	17.0	10.0	2.8	3.3	1.3	0.8	0.8	0.3	0.3	—	—	—	—	—	—	—	
1990	136.4	—	—	54.5	48.0	13.0	16.5	1.5	1.3	1.3	0.0	0.3	—	—	—	—	—	—	—	
1991	194.3	—	—	—	63.0	47.3	61.5	11.3	6.8	2.8	1.3	0.3	—	—	—	—	—	—	—	
1992	17.0	—	—	—	—	2.0	7.3	2.0	0.3	1.5	2.3	1.0	0.3	—	—	—	0.3	—	—	
1993	170.3	—	—	—	—	—	73.3	71.0	11.8	8.0	3.3	1.5	0.3	0.5	—	—	0.3	0.3	—	
1994	131.8	—	—	—	—	—	—	63.3	43.0	14.0	4.8	2.8	1.8	0.8	—	—	0.8	0.5	—	
1995	10.4	—	—	—	—	—	—	—	3.3	1.3	0.8	1.0	0.8	0.8	0.3	—	0.8	0.8	0.5	
1996	180.0	—	—	—	—	—	—	—	—	37.5	84.3	30.5	13.3	9.8	1.8	1.0	1.5	0.3	0.0	
1997	133.3	—	—	—	—	—	—	—	—	—	54.3	34.3	20.3	15.3	3.0	1.0	3.8	1.0	0.3	
1998	82.7	—	—	—	—	—	—	—	—	—	—	26.0	29.5	14.8	6.3	1.0	3.8	1.0	0.3	
1999	178.9	—	—	—	—	—	—	—	—	—	—	—	57.0	73.3	21.5	5.8	13.0	6.8	1.5	
2000	20.4	—	—	—	—	—	—	—	—	—	—	—	—	6.5	6.3	0.8	4.0	2.0	0.8	
2001	130.9	—	—	—	—	—	—	—	—	—	—	—	—	—	42.8	32.5	43.8	10.0	1.8	
2002	13.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.8	4.0	6.5	2.3	
2003	287.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	81.2	157.5	48.3	
2004	6.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.8	2.3	
2005	12.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.3	
Total		237.5	144.5	126.3	154.9	77.0	173.7	152.2	68.6	68.8	151.4	98.3	123.3	121.8	82.0	42.9	157.3	190.5	70.0	
Net lifts		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	





Table 8. —Mean catch per trap net lift for species commonly taken during spring trap net surveys in Anchor Bay, Lake St. Clair.

Species	Survey year				
	2002	2003	2004	2005	2006
Black crappie	0.00	0.02	0.35	0.00	0.00
Bluegill	0.08	0.00	0.11	0.03	0.05
Bowfin	0.00	0.04	0.05	0.00	0.02
Brown bullhead	0.03	0.02	0.03	0.00	0.02
Channel catfish	3.81	4.14	3.92	2.50	4.33
Common carp	0.52	0.62	1.30	0.32	0.88
Freshwater drum	2.07	10.80	3.65	0.70	8.24
Gizzard shad	0.05	0.08	0.02	0.06	0.02
Golden redhorse	0.02	0.04	0.04	0.06	0.05
Lake sturgeon	0.03	0.14	0.07	0.03	0.10
Largemouth bass	0.36	0.10	0.25	0.06	0.07
Muskie	0.64	0.56	1.41	1.64	1.09
Northern pike	1.87	0.30	1.30	2.00	2.05
Pumpkinseed	4.96	1.54	1.12	0.05	0.52
Quillback carpsucker	0.38	0.30	0.60	0.15	0.91
Redhorse	0.00	0.00	2.85	0.00	0.00
Rock bass	49.50	32.00	33.80	12.30	35.10
Shorthead redhorse	1.84	4.08	1.53	1.44	4.00
Silver redhorse	0.50	0.66	1.29	1.26	2.98
Smallmouth bass	6.23	19.20	5.49	3.32	8.21
Walleye	3.79	3.60	2.67	5.50	5.12
White bass	0.03	0.10	0.07	0.00	0.14
White perch	0.20	0.10	0.80	0.12	2.38
White sucker	0.28	0.20	0.27	0.20	0.43
Yellow perch	4.89	1.14	5.01	0.97	1.26
Total	82.07	79.78	68.00	32.71	77.97
Net lifts	64	50	55	34	42
Mean secchi depth (m)	1.8	2.2	1.2	2.2	1.7



Table 9. —Mean density (number of fish caught per hectare trawled) for all fish species caught during spring (June) with 10 m headrope index trawls in Anchor Bay, Lake St. Clair.

Species	Spring											Mean
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Alewife	29	11	3	2	4	3	3	0	0	0	0	5
Bluntnose minnow	1	0	0	0	11	10	7	1	6	118	1	14
Common carp	0	0	0	0	0	0	0	0	1	0	0	0
Emerald shiner	1	0	0	0	5	0	11	0	2	0	0	2
Freshwater drum	7	13	5	2	1	5	1	4	3	6	4	5
Johnny darter	22	3	7	0	0	0	0	0	3	2	0	3
Lake sturgeon	2	0	0	0	0	0	1	1	0	0	2	1
Largemouth bass	0	0	0	0	0	1	0	0	0	0	0	0
Logperch	9	76	83	8	0	2	8	0	42	6	0	21
Mimic shiner	17	26	2	0	14	20	362	0	118	45	2	55
Muskellunge	0	0	0	0	0	1	1	0	0	0	0	0
Northern pike	0	0	0	0	0	1	0	1	0	1	1	0
Shorthead redhorse	8	7	1	7	3	4	7	4	2	6	9	5
Pumpkinseed	0	1	0	0	0	2	0	0	0	0	1	0
Quillback	0	0	0	0	0	0	0	0	0	0	0	0
Rainbow smelt	593	656	4	4	4	61	0	14	53	11	6	128
Rock bass	43	18	5	1	13	30	39	18	5	10	33	19
Round goby	5	14	28	6	11	1	30	6	53	10	0	15
Silver lamprey	0	0	0	1	0	0	0	1	1	0	5	1
Silver redhorse	1	2	0	0	1	0	2	5	2	1	1	1
Smallmouth bass	0	3	1	0	1	3	4	2	2	10	4	3
Spottail shiner	178	123	8	69	935	7	5,730	211	1,777	524	769	939
Trout-perch	231	346	99	154	34	11	265	13	108	65	248	143
Walleye	5	10	1	2	1	1	1	1	0	2	12	3
White perch	1	1	0	0	13	1	1	1	2	1	2	2
White sucker	5	4	4	0	3	1	61	2	68	22	5	16
Yellow perch	1,184	560	250	867	158	1,132	725	306	888	1,107	869	731



Table 10. —Mean density (number of fish caught per hectare trawled) for all fish species caught during fall (September or October) with 10 m headrope index trawls in Anchor Bay, Lake St. Clair.

Species	Fall											Mean
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Alewife	28	31	12	2	3	32	0	0	0	1	1	10
Bluntnose minnow	0	34	0	9	15	54	33	13	43	238	61	45
Common carp	0	1	0	0	0	1	2	0	0	1	0	0
Emerald shiner	4	1	8	0	0	0	1	0	41	36	608	64
Freshwater drum	1	1	0	1	1	2	0	1	5	2	3	1
Johnny darter	18	4	0	0	0	0	0	7	0	0	0	3
Lake sturgeon	2	0	1	0	0	0	0	0	0	0	0	0
Largemouth bass	0	0	0	3	2	16	36	13	13	29	22	12
Logperch	32	40	21	1	5	18	6	14	38	113	34	29
Mimic shiner	268	1,095	0	30	15	10	44	507	8,909	3,072	109	1,278
Muskellunge	0	0	0	0	0	1	0	0	0	0	0	0
Northern pike	0	0	0	0	0	1	1	1	0	0	0	0
Shorthead redhorse	0	0	0	0	1	2	0	0	0	1	2	1
Pumpkinseed	0	4	0	2	0	5	5	3	1	0	5	2
Quillback	1	0	1	0	1	0	2	1	1	0	0	1
Rainbow smelt	1	17	0	0	1	0	0	4	26	0	1	4
Rock bass	18	82	1	89	93	40	41	35	25	77	67	52
Round goby	66	10	22	10	10	10	99	2	28	14	10	25
Silver lamprey	1	0	0	0	0	0	0	0	0	0	1	0
Silver redhorse	5	1	1	0	0	1	6	0	4	5	4	2
Smallmouth bass	14	11	25	11	6	0	51	7	3	41	32	18
Spottail shiner	17	487	45	200	51	879	2,407	1,068	545	2,410	2,668	980
Trout-perch	776	92	26	3	0	0	10	6	59	3	79	96
Walleye	7	1	3	1	1	0	11	0	2	9	3	4
White perch	16	12	8	0	0	0	13	8	6	146	12	20
White sucker	1	2	0	0	1	1	8	1	1	4	6	2
Yellow perch	34	27	69	22	41	114	73	181	48	52	34	63



Table 11. —Catch rate by age for yellow perch in June index trawl tows on Lake St. Clair.

Year class	Total CPUE	Survey year												
		1994 <sup>1</sup>	1995 <sup>1</sup>	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1984	0.5	0.1	0.3	—	—	—	—	—	—	—	—	—	—	—
1985	0.2	0.2	0.0	—	—	—	—	—	—	—	—	—	—	—
1986	0.3	0.1	0.0	—	—	—	—	—	—	—	—	—	—	—
1987	1.0	0.6	0.3	0.1	—	—	—	—	—	—	—	—	—	—
1988	4.1	1.6	0.9	0.3	0.3	—	—	—	—	—	—	—	—	—
1989	10.2	3.7	2.2	1.2	0.3	—	—	—	—	—	—	—	—	—
1990	30.1	4.1	13.4	5.2	1.3	—	—	—	—	—	—	—	—	—
1991	167.9	47.0	32.1	18.7	12.9	5.3	0.6	—	—	—	—	—	—	—
1992	52.1	3.4	5.8	11.5	9.6	18.4	1.1	0.1	0.5	—	0.7	—	—	—
1993	581.3	56.3	125.8	171.4	113.7	53.7	54.3	1.5	3.3	—	1.3	—	—	—
1994	903.0	—	166.2	293.2	348.2	53.2	20.6	8.3	10.6	1.3	0.7	—	0.7	—
1995	148.1	—	—	21.4	40.7	6.7	32.2	12.3	21.1	10.4	2.7	0.6	0.0	—
1996	279.7	—	—	—	33.3	108.5	70.3	11.3	35.3	9.7	9.4	0.6	1.3	—
1997	217.7	—	—	—	—	3.8	37.6	5.5	52.8	61.3	44.4	3.6	7.9	0.8
1998	1,354.9	—	—	—	—	—	650.2	114.1	347.7	83.7	118.4	22.7	17.7	0.4
1999	102.2	—	—	—	—	—	—	4.8	25.8	17.6	24.9	22.7	3.9	2.5
2000	77.8	—	—	—	—	—	—	—	2.7	4.6	5.4	43.0	20.5	1.6
2001	308.0	—	—	—	—	—	—	—	—	131.3	89.5	50.2	25.3	11.7
2002	37.9	—	—	—	—	—	—	—	—	—	8.7	11.4	6.1	11.7
2003	1,276.7	—	—	—	—	—	—	—	—	—	—	705.3	396.6	174.8
2004	167.3	—	—	—	—	—	—	—	—	—	—	—	9.0	158.3
2005	33.6	—	—	—	—	—	—	—	—	—	—	—	—	33.6



